

Geospatial-Intelligence Standards The Basics

Part 3: Managing GEOINT Standards



**On-line training modules sponsored by the
Geospatial Intelligence Standards Working Group
(GWG)**

Part 3: Managing GEOINT Standards

Overview

Governing authorities for GEOINT, as well as IT standards, are designated through U.S. law and departmental and agency directives and instructions. DoD and the Office of the Director of National Intelligence have designated the Director, National Geospatial-Intelligence Agency (NGA) as the functional manager of GEOINT, including GEOINT standards. The Defense Information Systems Agency (DISA), is the DoD designated Executive Agent for IT standardization.

NGA's National Center for Geospatial Intelligence Standards (NCGIS) and the Geospatial Intelligence Standards Working Group (GWG) were established as the primary organizations for managing GEOINT standards for the NSG. Government policies, strategic plans, program and technical objectives, and transformational goals drive the GEOINT standardization activities of the NCGIS and GWG.

In this module you will learn:

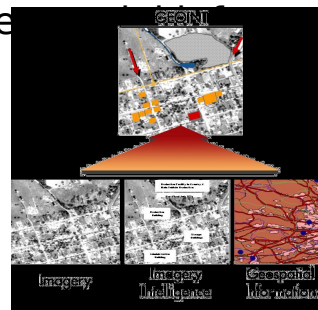
1. The designated governing authorities for GEOINT and IT standards
2. The operational strategies used to manage GEOINT standards
3. The strategic policies and objectives that guide the development and implementation of GEOINT standards
4. The transformational goals supported by GEOINT standards
5. The basic principals that guide GEOINT standards activities

Part 3: Managing GEOINT Standards

GEOINT Standards Governing Authorities

Authority to manage GEOINT standards is given to the National Geospatial Intelligence Agency through **DoD Directive 5105.60 National Imagery and Mapping Agency (NIMA) [2], October 11, 1996**. This directive establishes NGA within the DoD and assigns the Director of NGA [formerly NIMA] (D/NGA) the authority to act as the Functional Manager for Geospatial Intelligence. The D/NGA is responsible for advising “the Secretary and Deputy Secretary of Defense, the ASD (C3I), the Chairman of the Joint Chiefs of Staff, the Combatant Commanders, and, for national intelligence purposes, the DCI and other Federal Government officials, on imagery, imagery intelligence, and geospatial information.” (Oversight of the NCGIS is assigned to the Under Secretary of Defense for Intelligence (USD(I)).)

Section 6.11 of *DoDD 5105.60* specifically assigns the Director, NGA the responsibility to **prescribe and mandate standards** for imagery, imagery intelligence, and geospatial information for all DoD Components and non-DoD elements of the Intelligence Community. Section 6.21 also assigns the responsibility to “Represent the Department of Defense in national and international geospatial information standardization activities.”



GEOINT

Part 3: Managing GEOINT Standards

GEOINT Standards Governing Authorities (cont.)

The NGA is given additional standards authority under the **Defense Standardization Program**, a program authorized and assigned to the Defense Logistics Agency (DLA) by the Under Secretary of Defense for Acquisitions, Technology, and Logistics through **DoDI 4120.24**, *Defense Standardization Program (DSP)*. This instruction directs DoD components to implement the policies and procedures of the DSP, as defined in **DoD 4120.24-M**, *“Defense Standardization Program, 4 July 2004*. Heads of DoD components are to ensure compliance with DSP policies and procedures in the development and approval of DoD standards, specifications, and handbooks.

The DSP Directory, **FSC Class and Area Assignments (SD-1)**, issued by the Defense Standardization Program Office (DSPO), designates the NGA as the Lead Standardization Activity (LSA) for the GEOINT standardization area. In accordance with DSP policies and procedures, the NGA manages the DoD created standards and specifications that focus on GEOINT.

To carry out the Functional Management responsibilities for GEOINT standards and NGA's responsibilities under the DSP, the Director, NGA authorized, on September 18, 2002, the creation of the National Center for Geospatial Intelligence Standards (NCGIS) and charged it with developing a comprehensive coordinated GEOINT Standards Program.

To manage these responsibilities, the NCGIS established and leads the Geospatial Intelligence Standards Working Group (GWG), a community forum for addressing GEOINT standards issues. As a working group within the Information Technology Standards Committee (ITSC), the GWG recommends GEOINT standards to be placed in the DISR. The GWG is also the community coordination mechanism for the NGA to carry



Part 3: Managing GEOINT Standards

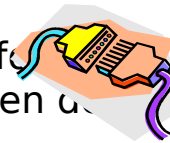
IT Standards Governing Authorities

IT standards authority is assigned to the Defense Information Systems Agency (DISA), which acts as Executive Agent for IT standards. Under this authority DISA has established and leads the Information Technology Standards Committee (ITSC), which identifies and adopts IT and GEOINT standards for use in DoD systems acquisitions. Adopted mandated standards are listed in the DISR.



DoDD 4630.05, *Interoperability and Supportability of Information Technology (IT) and National*

Security Systems (NSS) defines the strategies and responsibilities for ensuring interoperability and mandates the use of standards in the DISR when acquiring or new or modified IT and NSS systems.



The implementation of both IT and GEOINT standards is closely tied to the DoD acquisition strategy defined by the Defense Acquisitions System (DAS). The DAS is a program created by the Under Secretary of Defense for Acquisitions, Technology, and Logistics (AT&L) to define the policies, principles, and operating guidelines for managing all DoD acquisition programs. The DAS was established through **DoDD 5000.1** and is implemented through **DoDD 5000.2**. These directives mandate maximizing interoperability, limitations on the use of government-unique standards, and procedures and constructs for defining integrated architectures, including the standards that support them.

Part 3: Managing GEOINT Standards

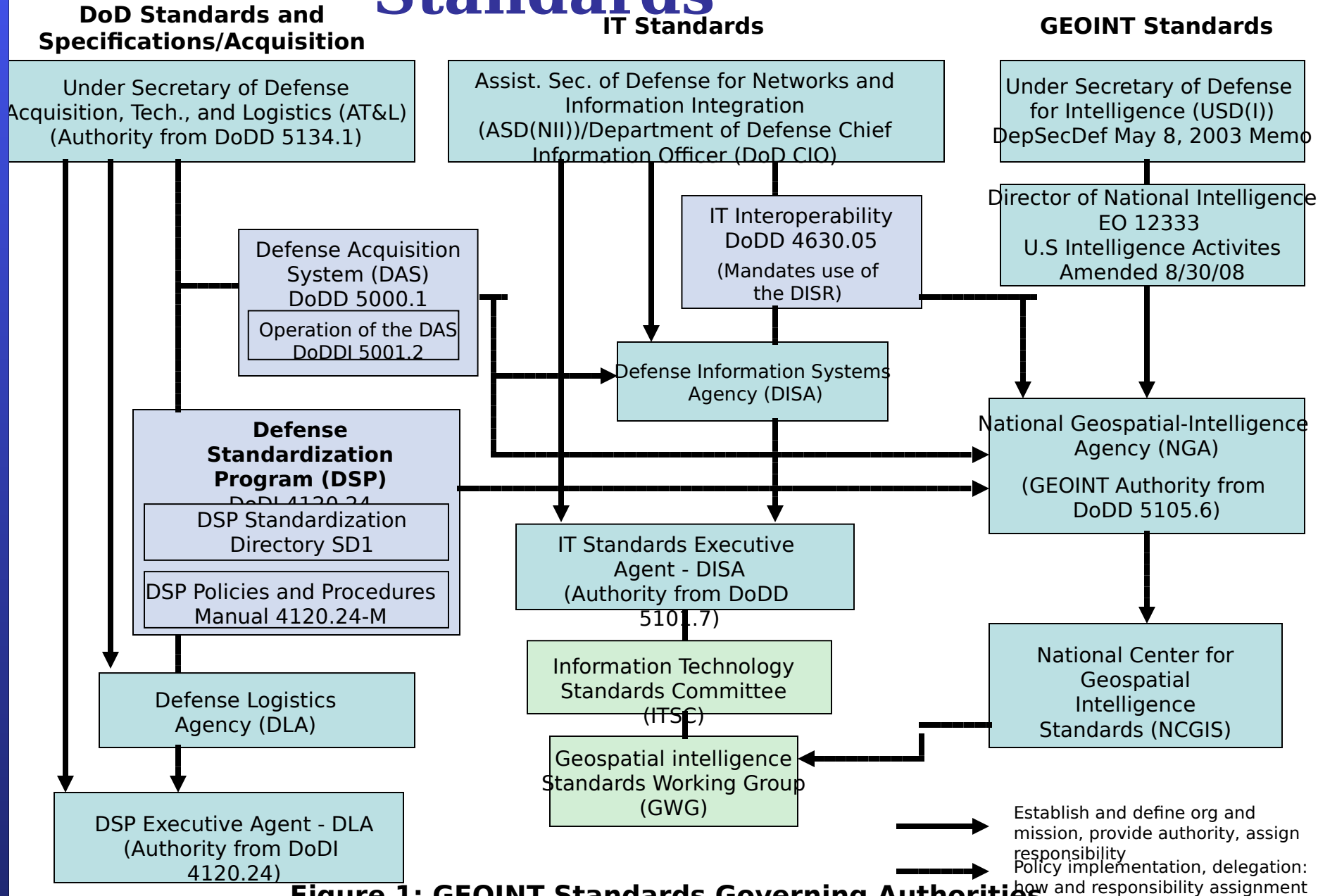


Figure 1: GEOINT Standards Governing Authorities

Part 3: Managing GEOINT Standards

Managing GEOINT Standards

The NGA's primary operational strategy for managing GEOINT standards is through the structure and community activities of the GWG and the NCGIS.

The Geospatial Intelligence Standards Working Group (GWG):

The GWG consists of agencies and organizations belonging to the DoD, the Intelligence Community, and the Federal civil community. The NCGIS chairs the GWG and provides secretariat and subject matter support. The GWG partners with private sector standards organizations, industry, academia, and U.S. international partners to develop and implement standards that enable the interoperability of GEOINT data and systems.

The GWG was recently designated as a Community of Interest (COI) and as such is the responsible body for coordinating GEOINT activities across the NSG. Core and Associate Members of the GWG are shown in the following pages:



GWG CORE MEMBERS

- **National Geospatial-Intelligence Agency (NGA)**
 - **Central Intelligence Agency (CIA)**
 - **National Reconnaissance Office (NRO)**
 - **National Security Agency (NSA)**
- **U.S. Air Force U.S. Army U.S. Navy U.S. Marine Corps**
 - **Office of the Directory of National Intelligence (ODNI)**
 - **Office of the Secretary of Defense (OSD - NII & AT&L)**
- **U.S. Central Command (CENTCOM) U.S. European Command (EUCOM)**
- **U.S. Joint Forces Command (JFCOM) U.S. Northern Command (NORTHCOM)**
- **U.S. Pacific Command (PACOM) U.S. Special Operations Command (SOCOM)**
 - **U.S. Strategic Command (STRATCOM) Joint Staff J2**
 - **Department of Homeland Security (DHS)**
 - **U.S. Department of Energy (DOE)**
 - **Defense Information Systems Agency (DISA)**
 - **Defense Intelligence Agency (DIA)**
 - **Defense Logistics Agency (DLA)**
 - **Defense Advanced Research Projects Agency (DARPA)**
 - **Federal Bureau of Investigation (FBI)**
 - **Federal Geographic Data Committee (FGDC)**

GWG ASSOCIATE MEMBERS

- **Digital Geospatial Information Working Group (DGIWG)**
 - **Open Geospatial Consortium (OGC®)**
 - **U.S. Geospatial Intelligence Foundation (USGIF)**
 - **Joint ISR Capability Group (JISRCG)**
 - **Australia United Kingdom Canada**
- **International Organization for Standardization (ISO) / Chair, TC 211**
 - **InterNational Committee for Information Technology (INCITS)/LI [ANSI Accredited]**
- **American Society for Photogrammetry & Remote Sensing (ASPRS)**

Part 3: Managing GEOINT Standards

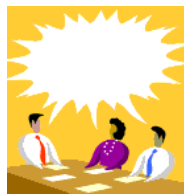
Managing GEOINT Standards (cont.)

The Geospatial Intelligence Standards Working Group (GWG)

As a technical working group of the DoD Information Technology Standards Committee (ITSC), the GWG reviews and recommends for adoption into the DoD IT Standards Registry (DISR), those standards that support the discovery, access, integration, dissemination, exploitation and interoperability of GEOINT. The GWG's core members are responsible for voting on standards additions and changes to the DISR in accordance with ITSC operating procedures. Associate members represent partners to the NSG and provide valuable input and subject matter expertise to the GWG.

The DISR provides a configuration management and enforcement tool for GEOINT and IT standards. The use of DISR standards is mandated for the development and acquisition of new or modified fielded IT and National Security Systems throughout DoD.

The GWG also acts as a community advisory body on GEOINT standards to the NGA as it carries out its functional management and DSP responsibilities for GEOINT standards. Through the GWG, NSG community positions on GEOINT standards are communicated to the NGA and may be documented in the form of official requirements submissions.



Part 3: Managing GEOINT Standards

Managing GEOINT Standards (cont.) The Geospatial Intelligence Standards Working Group (GWG)

GWG standing and ad hoc focus groups have been formed to address topical GEOINT standards issues. Focus group subject matter experts (SMEs) advise the GWG on GEOINT standards issues within their purview and may develop standards and specifications for specific government needs, such as implementation profiles of national and international standards. The GWG has the following eight standing focus groups:

1. National Imagery Transmission Format Standard (NITFS) Technical Board (NTB)
2. Imagery Standards Board (MISB)
3. Community Sensor Model Working Group (CSMWG)
4. Overhead Non-Imaging Infra-Red (ONIR) Focus Group
5. Application Schemas for Feature Encoding Focus Group (ASFE FG)
6. Geographic Portrayal Focus Group (PFG)
7. Metadata Focus Group (MFG)
8. Information Transfer & Services Architecture Focus Group (ITSA FG)

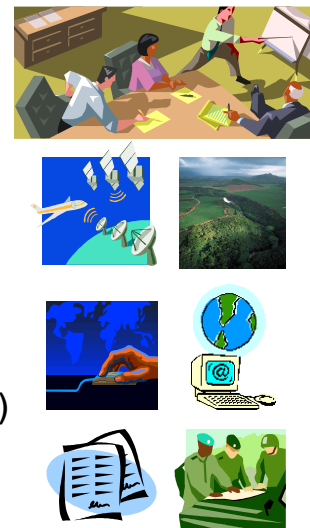


Figure 2 depicts the organizational structure of the GWG.

Part 3: Managing GEOINT Standards

Managing GEOINT Standards (cont.)

The Geospatial Intelligence Standards Working Group (GWG)

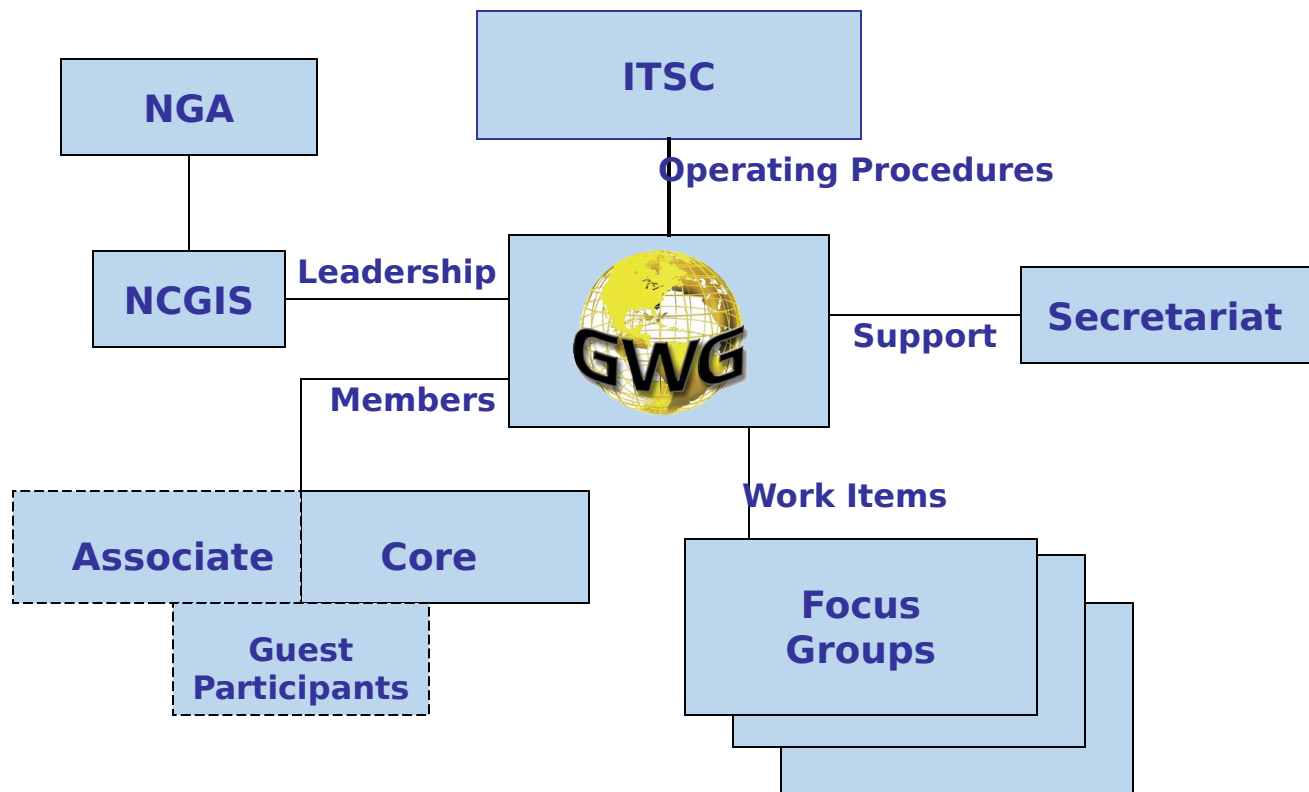


Figure 2: Organizational Structure of the GWG.

Part 3: Managing GEOINT Standards

Managing GEOINT Standards (cont.)

The National Center for Geospatial Intelligence Standards (NCGIS):

The NCGIS is the NGA organization established to execute the Director's responsibilities as Functional manager of GEOINT standards. The three primary goals of the NCGIS are to:

1. Advance geospatial intelligence interoperability.
2. Advance geospatial intelligence standards relevant to future NSG environments.
3. Foster key relationships and innovative partnerships to coordinate, adopt, and sustain geospatial intelligence standards.



Part 3: Managing GEOINT Standards

Managing GEOINT Standards (cont.)

The National Center for Geospatial Intelligence Standards (NCGIS)

The NCGIS ensures a coordinated standards-based approach to achieving GEOINT data and system interoperability. Using collaborative business practices, the team of standards management experts in the NCGIS oversees NGA and NSG community activities related to GEOINT standards.

The NCGIS leads and supports the Geospatial Intelligence Standards Working Group (GWG). It also acts as an advocate for the needs of NGA and the NSG Community by actively participating in a variety of standards forums and representing NSG requirements in standards development organizations.

The NCGIS also leads the NGA Standards Board (NSB), which is the NGA governance body that oversees and coordinates NGA's GEOINT and IT standards activities and processes. The NSB develops the technical view for standards, formulates NGA positions on standards, and ensures the implementation of standards in NSG enterprise systems through the acquisition process. The NSB interfaces with both the GWG and DSP to ensure community wide input into the selection of GEOINT standards used in the NSG systems developed by NGA. The NSB develops NGA governance processes that align those of the GWG and the DSP.

Figure 3 depicts the GWG, NSB, DSP, and the NCGIS as GEOINT standards management mechanisms.

Part 3: Managing GEOINT Standards

Managing GEOINT Standards (cont.)

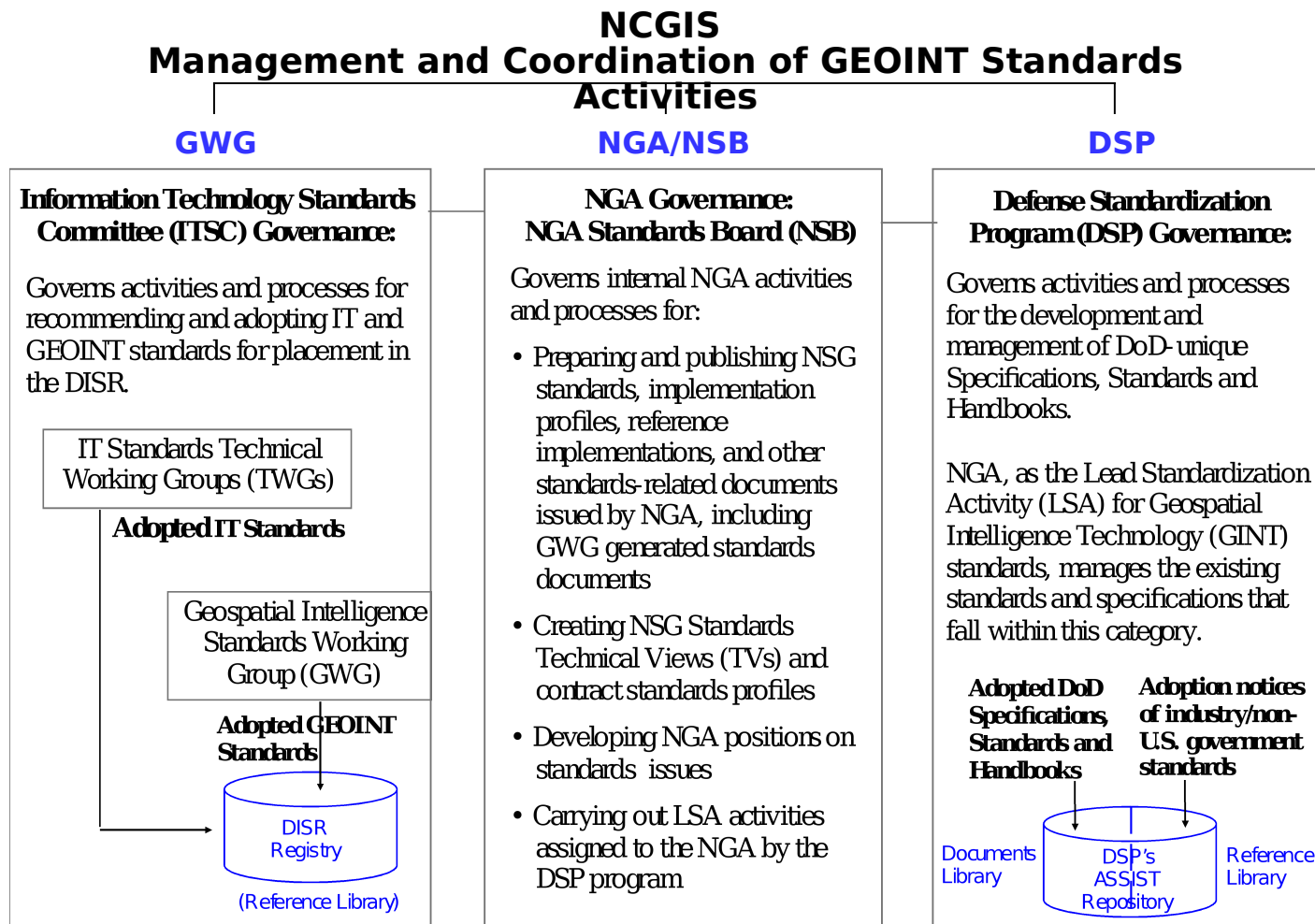


Figure 3: Management of GEOINT Standards

Part 3: Managing GEOINT Standards

Key Standards Policies and Strategic Objectives

The GEOINT standards activities of the GWG, DSP, and NCGIS are aligned with and support the strategic objectives and goals of the National System for Geospatial Intelligence (NSG). These objectives and goals are articulated in a number of strategic documents issued by the NGA, DoD, and Office of the Director of National Intelligence (ODNI).

These strategic documents identify the need for accurate and timely collection and dissemination of intelligence, transformation of capabilities, collaboration across all appropriate communities, systems interoperability, accessible data, elimination of redundancy, rapid technology insertion, net-centric operations, and data-centric products. They state directly or indirectly the need for GEOINT and other standards to support missions, operational goals, and technology and capability requirements of the GEOINT community.



GEOINT standards activities also align with U.S. government-wide strategies for the use of standards. U.S. government policies are in place to prevent the development of unnecessary and costly government standards, encourage the development of commercial standards that meet national needs, and promote the growth of U.S. industry.



Part 3: Managing GEOINT Standards

Key Standards Policies and Strategic Objectives (cont.)

Two key underlying policies for conducting standards activities within the U.S. government are the:

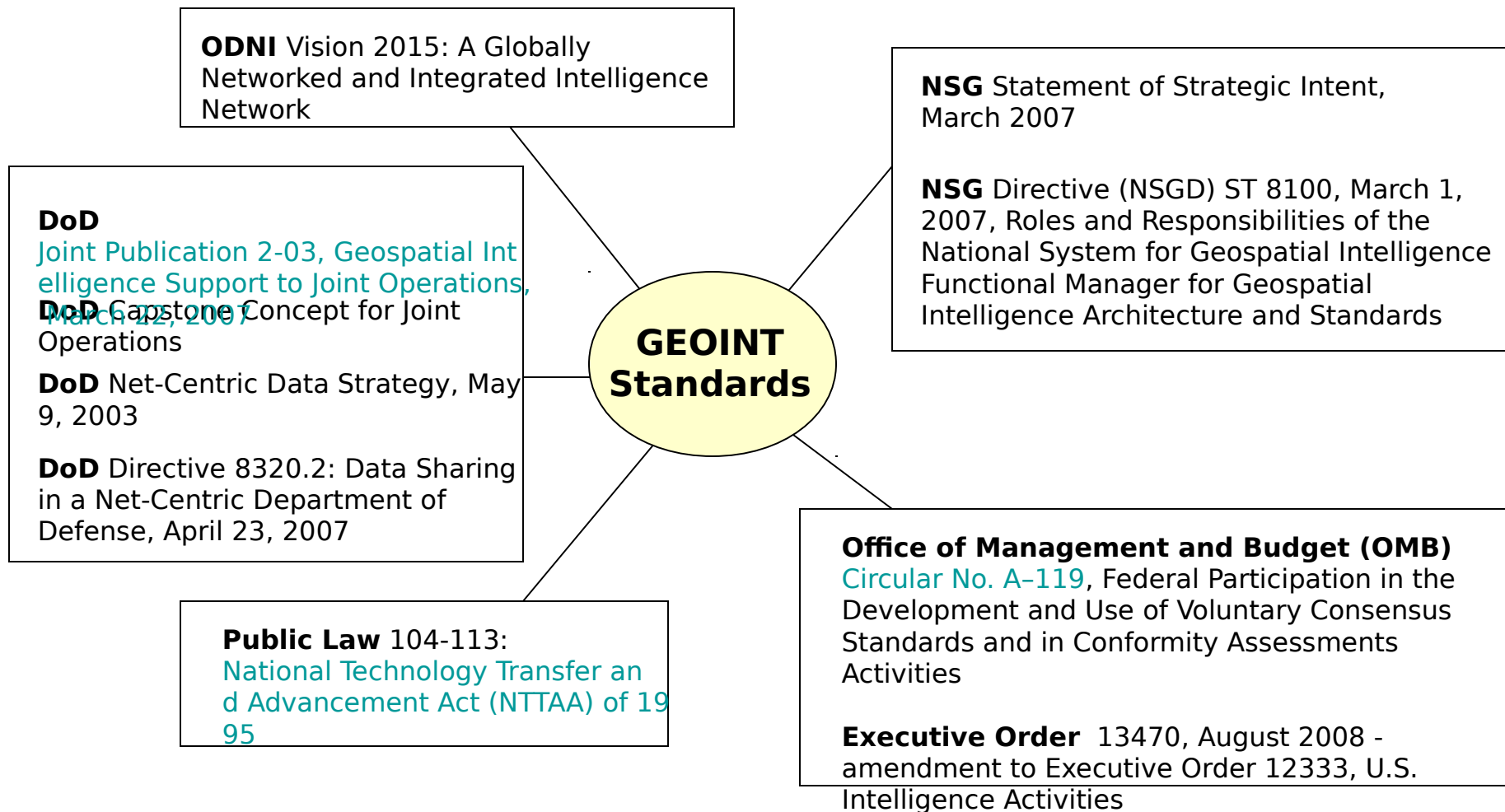
National Technology Transfer and Advancement Act (NTTAA) of 1995 (Public Law 104-113) The **NTTAA**, directs federal agencies to adopt private sector standards, particularly those developed by SDOs, wherever possible in lieu of creating proprietary, non-consensus standards. ([Learn more about the NTTA](#)).

Office of Management and Budget (OMB) Circular No. A-119, “Federal Participation in the Development and Use of Voluntary Consensus Standards and in Conformity Assessments Activities.” This OMB directive mandates the use of voluntary consensus standards whenever possible. ([Read Circular No. A-119](#))

Figure 3 identifies the key government policy and strategy documents that guide GEOINT standards development and implementation.

Part 3: Managing GEOINT Standards

Figure 3: Key Standards Policy and Strategy Documents

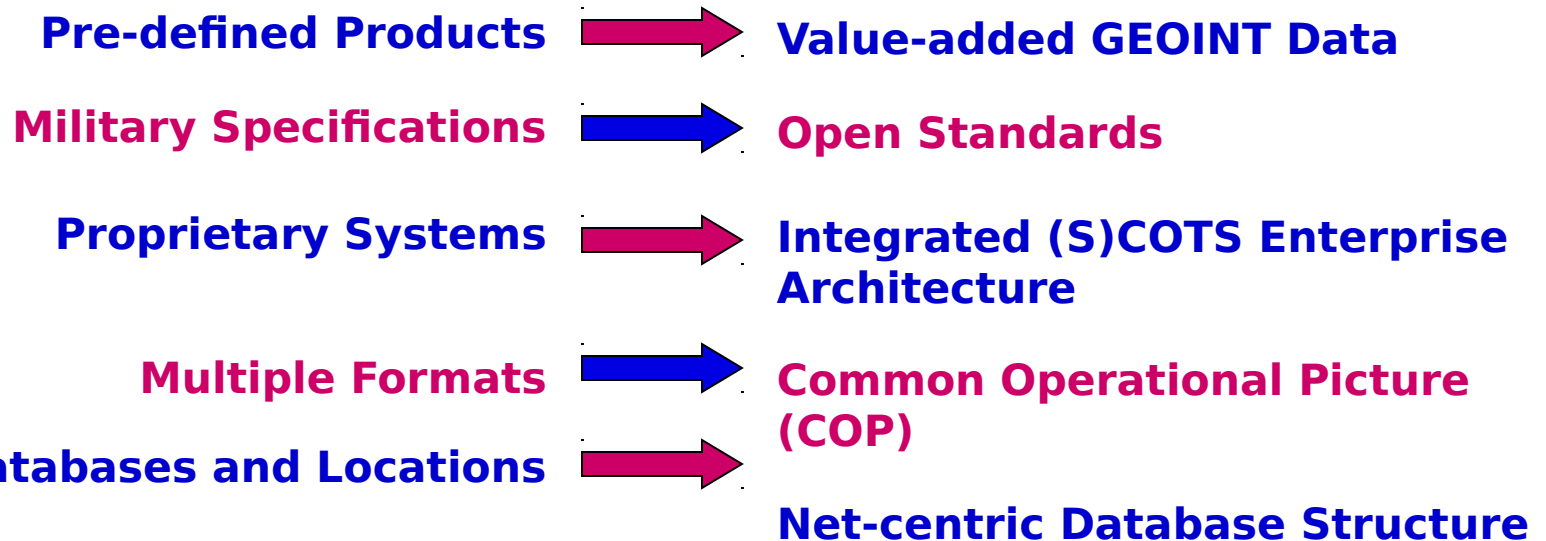


Part 3: Managing GEOINT Standards

Transformational Goals for the NSG

Advances in technology, NSG requirements for advanced capabilities, and the growing need to share GEOINT across geographic and organizational boundaries are major drivers in the transformation of the NSG. The NSG is evolving towards the creation and delivery of GEOINT data in common formats, using Standards-based Commercial-off-the-Shelf (SCOTS) solutions, in an internet environment. GEOINT standards play a significant role in supporting the transformational goals shown in **Figure 4**.

Figure 4: NSG Transformational Goals



Part 3: Managing GEOINT Standards

Guiding Principles for GEOINT Standards

To achieve these transformational goals and advance the use of GEOINT, the following principles guide all GEOINT standards activities:

- Ensure the availability of GEOINT standards that keep pace with future technologies and required capabilities
- Ensure the use of GEOINT standards that support and promote the interoperability of GEOINT systems and data
- Reduce the reliance on government-unique standards by fostering the use of open consensus-based industry standards and SCOTS solutions whenever feasible
- Manage and preserve the integrity of GEOINT through the use of appropriate GEOINT standards



Part 3: Managing GEOINT Standards

Summary

Here are some key points for you to take away from this lesson:

The NGA has the authority to *prescribe and mandate standards* for imagery, imagery intelligence, and geospatial information for all DoD Components and non-DoD elements of the Intelligence Community. It is also assigned, by the DSP, the management responsibility for DoD created standards and specifications that focus on GEOINT. The NGA formed the NCGIS to carry out these responsibilities in an environment of community collaboration.

To accomplish this, the NCGIS established the GWG to act as the community forum for addressing GEOINT standards issues. The GWG is a technical working group of the ITSC, which was established by DISA under its authority as Executive Agent for IT standardization. The ITSC committees are responsible for identifying and adopting IT and GEOINT standards in the DISR, which is mandated for use in DoD acquisitions. ITSC activities support the DoD acquisition strategy defined by the Defense Acquisitions System (DAS).

The GWG recommends GEOINT standards for inclusion in the DISR and acts as the community forum used by the NGA in carrying out its responsibilities for managing GEOINT standards and specifications under the DSP. Eight GWG Focus Groups, such as the Metadata Focus Group and the Portrayal Focus Group, address specific topical areas of standardization by bringing together source matter experts across the NSG.

Part 3: Managing GEOINT Standards

Summary

In addition to leading the GWG, the NCGIS provides NSG representation on National and International standards bodies. It also leads and supports the NSB, which is the primary coordination mechanism for standards activities within the NGA.

GEOINT standards activities are aligned with and support the strategic objectives and goals of the NSG, which are stated in strategic and policy documents, such as the ODNI Statement of Strategic Intent, DoD Joint Vision 2020, DoD Net-Centric Data Strategy; and NSG Statement of Strategic Intent. GWG and NCGIS standards activities also align with established laws and government-wide policies on standardization, which are meant to prevent duplication and unnecessary costs, encourage commercial standardization that meets national needs, and promote the growth of U.S. industry.

GEOINT standards support the need for accurate and timely collection and dissemination of intelligence, community collaboration, systems interoperability, accessible data, rapid technology insertion, net centric operations, and data-centric products. These standards also support the changing environment of GEOINT as GEOINT becomes more data and net-centric, is created and distributed in common formats, and is supported by commercial off-the-shelf systems and open standards.

With GWG and NCGIS management oversight, GEOINT standards 1) keep pace with future technologies and required capabilities, 2) ensure system and data interoperability, 3) foster use of open consensus-based industry standards and SCOTS solutions whenever feasible, and 4) preserve the integrity of GEOINT.

Part 3: Managing GEOINT Standards

Quick Quiz

Now that you have a basic understanding of GEOINT authorities, policies, and guiding principles, [Click Next](#) and take this quick quiz.. More than one answer may be selected.

Want to learn more about managing GEOINT and IT standards? Visit the following websites:

- National Geospatial-Intelligence Agency <http://www.nga.mil>
- National Center for Geospatial Intelligence (NCGIS) <http://www.nga.mil/...>
- GEOINT Standards Working Group <http://www.gwg.nga.mil>
- Defense Standardization Program: <http://www.dsp.dla.mil/>
- Defense Information Systems Agency <http://www.disa.mil/>

Part 3: Managing GEOINT Standards

Part 3 Quick Quiz

1. Which agency has functional management authority over GEOINT and GEOINT standards:
 - a. DISA
 - b. NCGIS
 - c. NGA
 - d. DIA

Answer:

c. NGA

2. The Defense Standardization Program:
 - a. Registers all standards used by the government
 - b. Oversees all standards used by the DoD and IC
 - c. Manages the development of military standards and specifications
 - d. Has designated the NGA as the lead standardization activity for the GEOINT standardization area

Answer:

c. Manages the development of military standards and specifications
d. Has designated the NGA as the lead standardization activity for the GEOINT standardization area

3. The Executive Agent for IT standards:
 - a. Established the ITSC to manage IT standards
 - b. Is DISA
 - c. Has authority to mandate the use of standards in the DISR for systems acquisition
 - d. All of the above

Answer:

d. All of the above

Part 3: Managing GEOINT Standards

Part 3 Quick Quiz

4. The NCGIS:
- a. Chairs and provides secretariat and SME support to the GWG
 - b. Is the NGA organization that carries out NGA's management authority over GEOINT standards
 - c. Leads NGA's internal standards board
 - d. All of the above

Answer:

d. All of the above

5. The GWG:
- a. Stands for Geospatial Intelligence Standards Working Group
 - b. Is the NSG community forum that addresses GEOINT standards
 - c. Is a technical working group within the ITSC
 - d. Recommends GEOINT standards to be placed in the DISR
 - e. All of the above.

Answer:

e. All of the above

6. GWG Focus Groups:
- a. Are made up of subject matter experts across the NSG
 - b. Conduct activities pertaining to topical GEOINT standards areas
 - c. Make voting recommendation to the GWG
 - d. All of the above.

Answer:

d. All of the above

Part 3: Managing GEOINT Standards

Part 3 Quick Quiz (cont.)

7. GEOINT standards activities align with:
- a. ODNI and DoD policies and strategic plans
 - b. Public law and U.S. government policy directives
 - c. The NSG Statement of Strategic Intent
 - d. All of the above.

Answer:

d. All of the above

8. Which is NOT a transformational goal of the NSG supported by GEOINT standards:
- a. The use of SCOTs solutions in building enterprise architectures
 - b. Making GEOINT data available through a net-centric (internet) environment
 - c. Evolving from use of government-unique standards to non-proprietary open standards
 - d. Changing the system of measurements from the English system to metrics

Answer:

d. Changing the system of measurements from the English system to metrics

9. In managing GEOINT standards, the GWG and NCGIS promote standards that:
- a. Don't require a lot of documentation
 - b. Help to achieve optimal system and data interoperability
 - c. Keep pace with technology advances and evolving capabilities requirements
 - d. Are easy to understand
 - e. All of the above

Answer:

b. Help to achieve optimal system and data interoperability

c. Keep pace with technology advances and evolving capabilities requirements

Congratulations!

You've Completed

Part 3: Managing GEOINT Standards